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ABSTRACT

This paper seeks to answer some of the many questions that exist about credit-based transition programs. The paper reviews 45 published and unpublished reports, articles, and books on the most common credit-based transition programs: dual enrollment, Advanced Placement (AP), International Baccalaureate (IB), Tech Prep, and middle college high schools (MCHS). The report examines the programs and their characteristics and reviews what is known about their ability to increase college access and success for a wide range of students. Though promoting college success for less-prepared students may seem counterintuitive, policy literature, program information, and practitioners advance a variety of arguments for why such programs can serve a wide variety of students. The benefits range from preparing students for the academic rigors of college to improving students' motivation through interesting courses and high expectations. The report divides the programs into three categories: (1) Singleton Programs, which are stand-alone college-level courses; (2) Comprehensive Programs, which subsume most of a student's academic experience; and (3) Enhanced Comprehensive Programs, which offer students college coursework coupled with guidance and support to ensure their success. Research on the impact of these programs is at an early stage, and this report found few quantitative research reports that measured the effects of program participation. (Contains 49 references.) (NB)

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# PROMOTING COLLEGE ACCESS AND SUCCESS:

## A Review of Credit-Based Transition Programs

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Thomas Bailey and Melinda Mechur Karp

Community College Research Center
Teachers College/Columbia University

June 2003

Written for the Office of Vocational and Adult Education, U.S. Department of Education



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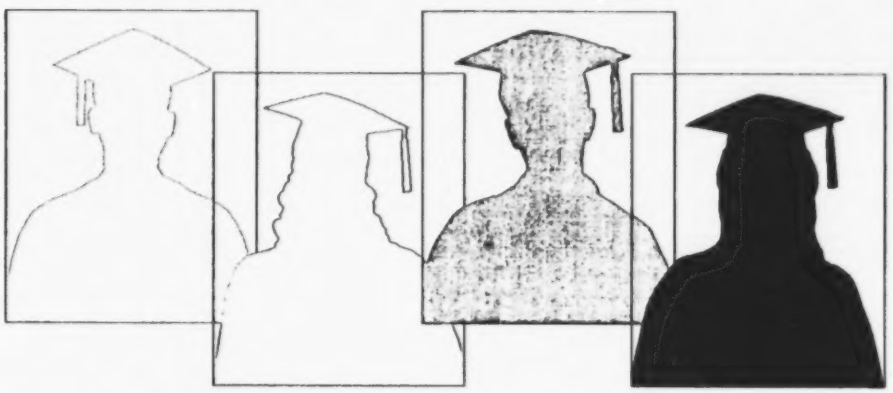

## A Review of Credit-Based Transition Programs

Thomas Bailey and Melinda Mechur Karp

Community College Research Center
Teachers College/Columbia University

June 2003

Written for the Office of Vocational and Adult Education, U.S. Department of Education

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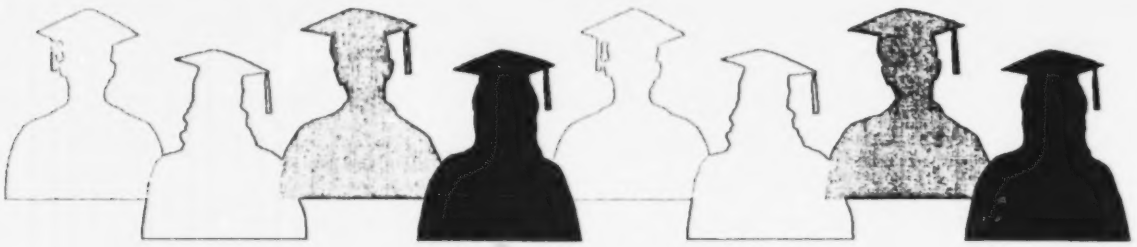

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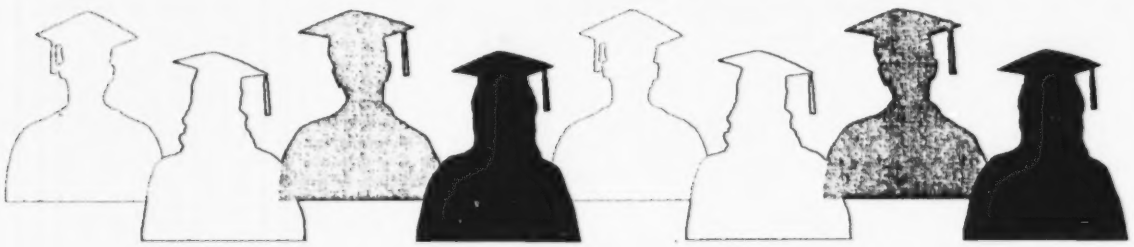

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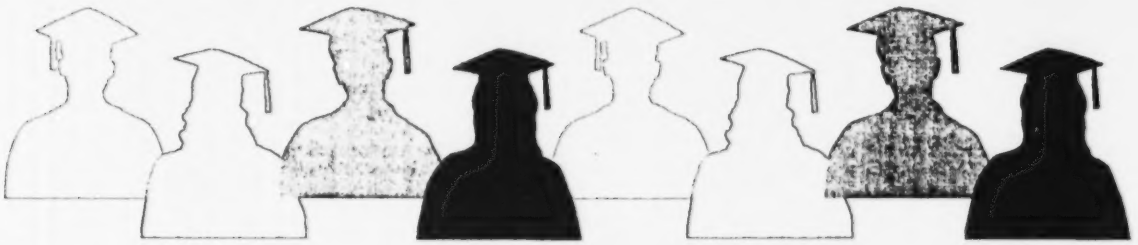

# Executive Summary

Promoting college access and building an educational foundation for success in college are widely accepted educational goals, particularly as the need for postsecondary credentials has increased. There is, however, widespread debate about the ability of high schools to prepare students, both academically and developmentally, for college. Analysts argue that the disconnection between the K-12 and postsecondary systems is a fundamental cause of these problems.

Although there are many initiatives and programs designed to facilitate the transition to college and increase students' chances, one approach that has grown dramatically in the last decade encourages and allows high school students to take college courses and to earn college credit while still in high school. We refer to these programs as *credit-based transition programs.* Traditionally used to accelerate the progress of high-achieving college-bound youth, they have gained attention recently as a way to facilitate college access and success for middle and even lower performing students.

This paper seeks to answer some of the many questions that exist about credit-based transition programs. We review 45 published and unpublished reports, articles, and books on the most common credit-based transition programs—dual enrollment, Advanced Placement (AP), International Baccalaureate (IB), Tech Prep, and middle college high schools (MCHS)—to examine the programs and their characteristics, and to review what is known about their ability to increase college access and success for a wide range of students.

Using credit-based transition programs to promote college success for less-prepared students may seem counterintuitive: if students have not been successful in high school and are not prepared for college, it is not obvious why the solution is to put them in college even earlier. Nonetheless, policy literature, program information, and practitioners advance a variety of arguments for why such programs can serve a wide variety of students. These benefits include the following:



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- The ability of credit-based transition programs to prepare students for the academic rigors of college;
- Their ability to provide more realistic information to students about the skills that they will need to succeed in college; and
- Their ability to improve students' motivation through interesting courses and high expectations, and promote institutional relationships between colleges and high schools.

There is no systematic count of the overall number of students enrolled in credit-based transition programs, partly because of the wide range of programs. Estimates of the share of all juniors and seniors in U.S. high schools who participate in at least one form of credit-based transition program range as high as 50 percent. While other estimates are lower, what is clear is that participation is growing: Advanced Placement and the International Baccalaureate have both doubled the number of students taking their end-of-course exams over the past decade, Middle College High Schools are the subject of much foundation support, and dual enrollment programs have become institutionalized in nearly every state and many local school districts.

## Program Variation

The nature of credit-based transition programs varies widely. Program factors include course content, course location (at the college, at the high school, or at a combination of the two), type of instructor (certified high school teacher or full-time or adjunct college professor), the guarantee of college credit, the method of earning college credit (through a third-party test or by simply passing the course), and the characteristics of students (particularly whether they are high achieving, college-bound students, or lower achieving students).

This paper develops a typology of the program variations that differentiates among the programs in terms of their intensity and ability to expose students to a wide range of "college-like" experiences. The typology is based on the assumption that, especially for less traditionally college-bound students, the transition from high school to college involves more than just an increase in academic rigor, although that is indeed a crucial element. We conceive of three broad categories of intensity:

***Singleton programs*** are offered as an elective, with the primary goal of exposing students to college-level academics. They are often only a small part of a student's high school experiences. Usually, the goal of singleton programs is not to recreate the college experience; rather, they aim to enrich the high school curriculum by offering an opportunity to take a college-level class. A secondary

goal is to provide students with the opportunity to earn college credit so that they may begin their postsecondary education with a "head start" towards graduation. Other aspects of the high school-college transition, such as preparing applications or obtaining financial aid, do not necessarily accompany singleton programs.

The Advanced Placement (AP) program is one of the most common singleton programs, and many dual credit programs follow this model as well. Singleton programs are generally offered through the high school and are frequently taught by high school teachers who have been specially certified to teach college courses. Although program and policy language conceives of singleton programs as meeting the needs of a wide variety of students, the majority of the literature reveals that students in these programs are already highly motivated and academically proficient.

***Comprehensive programs*** encompass much of a student's educational experience. Most programs in this category require that students take many, if not all, of their courses, usually during the last year or two of high school, under its auspices. The key element of this model is its ability to subsume students' full high school experience under a credit-based transition program.

The International Baccalaureate (IB) program is an example of a comprehensive transition program, and some dual credit programs and Tech Prep programs use this model as well. Programs can be located on either the high school or college campus, and courses can be taught by either high school or college teachers. As in singleton programs, the majority of students in comprehensive programs are academically advanced and ready for college-level work. Though the intensity of comprehensive programs means that they may offer students more of an opportunity to learn the behaviors and attitudes required for success in college than singletons, their primary focus remains on academic preparation, exposure to rigorous coursework, and the ability to earn college credit.

***Enhanced comprehensive programs*** are the most intensive form of credit-based transition program. These programs seek to prepare students for college, not only through rigorous academic instruction, but also by offering a wide range of activities such as counseling, assistance with applications, mentoring, and general personal support. They aim to address all elements of the secondary-postsecondary transition, and encompass the majority of students' high school experiences. Because of their intensity and reliance on close student-teacher relationships, these programs are much less common than those fitting the other two categories. However, they appear to be best suited to the needs of nontraditional college students and to have the most potential to move non-academically advanced students into postsecondary education.

The most common type of enhanced comprehensive program is the middle college high school (MCHS), though some dual enrollment programs also fit this program type. Enhanced comprehensive programs are primarily focused on middle or low achieving students and on youth who are socially or

economically disadvantaged, but many still have restrictive entrance requirements. They are more likely to be located on a college campus than other transition programs, but many are located at the high school.

## Research Findings

It is clear from our search of the available literature that research on the effects of transition programs is at a very early stage. While we reviewed 45 articles and reports, only 21 of them discussed program outcomes. The remaining studies were qualitative or descriptive, or they focused on student and parental opinions and attitudes about the programs. They did not attempt to measure effects of program participation. The studies varied in terms of the rigor and definitiveness of their methodologies. Of the 21 that did attempt to report on outcomes, few attempted to take account of confounding factors such as student characteristics, prior student achievement, or student motivation. Given that many programs have entrance requirements, it is difficult to discern whether measured outcomes result from the selectivity of the programs or the experience that the students have in the programs.

Studies of singleton programs do argue that credit-based transition programs have positive outcomes, though few were able to control for student characteristics. The one study of dual credit and AP programs that did control for students' prior academic achievement found that students who had participated in transition programs experienced lower drops in their grade point averages during their freshman year of college than non-participants.

Studies of comprehensive programs also came to positive conclusions. Studies of Tech Prep—which is targeted toward students not typically seen as college bound—at both the state and national level have found that Tech Prep students were more successful in high school than similar, non-Tech Prep students, and were likely to enter postsecondary education (though more often in a two-year rather than a four-year institution).

Finally, research on middle college high schools seems to indicate that enhanced comprehensive programs are successful with at-risk students. This research found that middle college high school graduates generally performed better than students in other alternative schools, did well on state assessment tests, and graduated from high school at higher rates than other students in their school district, though they also had relatively low rates of bachelor's degree attainment. Studies of enhanced comprehensive dual enrollment programs found high levels of college success among participants. However, these studies were also unable to control for student characteristics such as high levels of motivation.

## Conclusions

Despite the obvious appeal of credit-based transition programs and preliminary evidence that they may help low-achieving students become successful in college, so far we know little that is definitive about the overall characteristics and effects of these programs. Thus, though arguments in favor of the strategy may be compelling enough to continue experimentation, policy makers and educators need to pursue research in a variety of areas:

***Gather information on the size and characteristics of the programs.*** There are currently no reliable statistics on the number of students involved in the various programs or on the distribution of program characteristics among existing programs.

***Examine the content of courses taught in transition programs.*** It is important to ascertain whether credit-based transition programs really teach college-level material or "watered-down" course content.

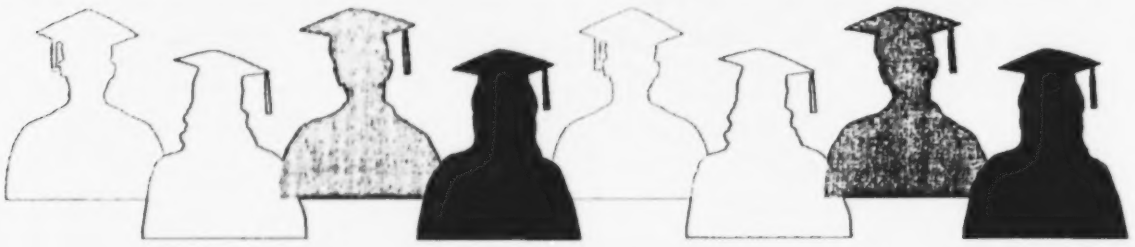
***Develop more precise information on the distribution of the characteristics of students in transition programs.*** Data are needed to determine whether credit-based transition programs truly enroll a broad range of students, or are still primarily limited to the college-bound.

***Develop a clearer explanation of the mechanisms through which credit-based transition programs can effectively help middle and lower achieving students gain greater access to and have more success in college.*** Advocates have not been explicit about why such programs can serve a broad range of students.

***Conduct clear, methodologically sound evaluations of credit-based transition programs.*** The studies that we have reviewed generally come to positive conclusions, but they can only be considered tentative.

***Conduct research on the impact of different program models on student outcomes.*** There is some evidence that the location of credit-based courses and the type of teacher may influence student outcomes, but the available research does not enable conclusions about the effectiveness of different program types.

The literature suggests that transition programs potentially hold promise, yet does not convincingly document that this promise is being realized. Studies offer evidence for continued support of such transition programs, but also draw attention to the need for more comprehensive and reliable information on program and student characteristics, as well as for sound research. This research should both evaluate program outcomes and explore the mechanisms and program features that contribute to any positive influence credit-based transition programs may have on students' transitions into and through postsecondary education.



# Introduction

Promoting college access and building an educational foundation for success in college are widely accepted educational goals. American high school students, parents, educators, and policy makers are increasingly convinced that some postsecondary education is an important prerequisite for finding reasonably well-paid jobs. Thus, the majority of twelfth graders say that they "definitely" intend to earn a bachelor's degree (National Center for Education Statistics, NCES, 2001). Yet, many fewer young people attain a college degree than plan to do so.[1]

At the same time, the debate continues about the ability of high schools to prepare students for college, to provide them with the counseling necessary to select and apply to colleges, or to give them the personal and academic skills needed to succeed in college. Analysts argue that the separation between the K-12 and postsecondary systems is a fundamental cause of these problems (Venezia, Kirst, & Antonio, 2003). Students graduate in good standing from high school only to find themselves in a remedial class when they enter college. Many disengaged students remain uninformed about the future importance of academic learning in high school and the impact their decisions have on future life opportunities.

Although there are many initiatives and programs designed to facilitate the transition to college,[2] one approach that has grown dramatically in the last decade encourages and allows high school students to take college courses and to earn college credit while still in high school. While such programs have existed for many years, they have been used primarily to accelerate the progress of high-achieving college-bound youth who are already prepared for college-level work. But more recently, as we will show, private foundations, educators, and state and federal policy makers have sought to use them to facilitate college access and success for middle performing or even lower performing students. Since the common element among these strategies is that they offer students the opportunity to earn college credit for coursework completed during high school, we refer to them as *credit-based transition programs*. Programs included are these: dual enrollment or dual credit, Advanced Placement (AP), International

Baccalaureate (IB), Tech Prep, and middle college high schools (MCHS).

Despite their growth, many questions about these transition programs remain to be answered: How large are the programs, what are their characteristics, who are the students, and do the programs effectively increase college access and success? In this report, using the existing published and unpublished research literature, we look for answers to these questions, focusing particularly on the role that transition programs can play for students other than the traditionally college-bound youth. We ask what guidance existing research offers now in conceptualizing and developing these strategies, and what the important research questions are that remain to be answered.

Our analysis is based on a review of all available literature from 1990 to the present, as well as on interviews with state- and college-level personnel, researchers, and representatives of associations.[3] In addition, we have drawn on information from our own fieldwork carried out between 2000 and 2002 at fifteen community colleges in seven states.[4]

We first discuss the rationales for these strategies and describe what reformers hope transition programs will accomplish. In the following section, we provide a general description of the various credit-based transition programs and present information on their size and growth. We then develop a three-part categorization, based on the intensity of the experience for students. We also present evidence on the characteristics of students who enroll in each type of program. Next, we review the empirical evidence on the effectiveness of each of the three categories. We end with conclusions and recommendations for research and policy.

## THE RATIONALES FOR CREDIT-BASED TRANSITION PROGRAMS

Why do policy makers and educators believe that credit-based transition programs can facilitate access to and success in college? We are particularly interested in the conceptual basis for believing that transition programs can serve poorly prepared students or students who would not traditionally go to college.

Using credit-based transition programs for less-prepared students may seem counterintuitive: if students have not been successful in high school and are not prepared for college, it is not obvious why the solution is to put them in college even earlier. Moreover, in the past and even during the more recent period of growing enthusiasm for the strategy, most transition programs have been aimed at higher achieving students. Thirty-two of the 45 articles and books we reviewed provided descriptions of program entry requirements or target students.[5] Of those, 25 did require a reasonably high level of academic proficiency prior to program participation. In general, admissions requirements

stipulated that students be assessed as "college ready" by college admissions tests or by earning high scores on the SAT or ACT, be admitted to the college prior to enrollment, or be deemed "academically proficient" by program staff.

Despite the past use of these programs by advanced students and the apparent counterintuitive nature of the argument, policy literature, program information, and practitioners advance a variety of reasons for why such programs can serve a wide variety of students:

***Prepare students for the academic rigors of college.*** Enrolling in college-level courses can greatly increase students' exposure to challenging coursework. As research (Adelman, 1999) has found that the strongest predictor of bachelor's degree completion is the intensity and quality of students' high school curriculum, this is an important benefit.

***Provide more realistic information to students about the skills that they will need to succeed in college.*** By actually participating in college classes, students develop a clear idea about whether or not they are prepared. Moreover, many transition programs require students to pass a college assessment test before entering the program. Even if students fail these tests and cannot enroll, they have received a warning about their lack of preparation for college. Underachieving students may not realize how important academic achievement in high school is for their future success in college. By exposing them to college earlier, these students may understand why they need to apply themselves to their high school work.

***Help high school faculty prepare their students for the college experience.*** Frequently, students who do not persist in college cite non-academic factors as reasons for dropping out: they are overwhelmed by the new institution, they are unfocused, or they had unrealistic expectations of the college experience (Noel, Levitz, & Saluri, 1985). Credit-based transition programs allow high school and college faculty to work together to convey to students the skills and knowledge that young people need to have to achieve their educational goals (Orr, 1998; 1999). And, because many (though not all) dual enrollment programs include time on campus and exposure to the non-academic side of college, they allow students to acclimate to the college environment earlier. Giving students a realistic expectation of what college is like potentially enables them to adjust more easily to college life upon high school graduation.

***Expose traditionally non-college-bound students to college.*** Many high school students whose parents did not attend college may not consider college to be an option for them. By exposing these students to college while they are still in high school or by, in effect, moving some of college into the high school, transition programs may demystify college and show students that other young people like them can have success in college.

***Provide curricular options for students.*** Many students are bored in class or do not see the relevance of their high school coursework for their future success (Lords, 2000). Moreover, as schools face budget crises and eliminate electives and vocational courses, many students are unable to participate in courses that they find interesting and inspiring (Robertson, Chapman, & Gaskin, 2001). Credit-based transition programs, particularly those that take advantage of courses offered by local colleges, can provide students with the opportunity to take courses no longer available at their high school. It is hoped that students' motivation will increase by expanding their opportunities to take interesting and challenging courses.

***Improve motivation through high expectations.*** The high expectations held for students in these programs are also presumed to increase their internal motivation. This argument is particularly important for underachieving students. Some believe that underachieving students can perform at a much higher level, but are not motivated to do so because they are bored in class or see little relationship between their achievement in high school and their future success (Lords, 2000). Offering these students the opportunity to earn college credit might promote hard work and high achievement.

***Lower the cost of postsecondary education for students.*** The rapidly rising cost of college (The College Board, 2001a) has made attaining a college degree difficult to afford for many students. Because dual credit programs are free or relatively low cost, they serve as an inexpensive way for young people to earn college credit, thus lowering the long-term cost of a college degree and promoting access to postsecondary education for students who may find the prospect of college tuition a daunting one (Orr, 2002). The ability of students to accumulate college credit—in some cases up to almost a full year's worth—prior to entering college allows them to both shorten the time it takes to earn their degree and save significantly on the overall cost of their postsecondary education.

***Promote institutional relationships between colleges and high schools.*** Underlying most of these positive views of credit-based transition programs is a very negative assessment of the high school. Getting colleges more involved may improve the high schools' ability to work with at-risk or lower achieving students. Regardless, a richer flow of communication between the two institutions will improve the quality of information available to high school students.

In short, credit-based transition programs are believed to lead to many positive outcomes for students.[6] And some educators argue that even exposing lower achieving students to college early can improve their access to college and their success once they are there. These arguments depend particularly on psychological and motivational effects and on improving the flow of information.

Does the empirical evidence developed so far support these arguments? Below we review the available research. But before we do that, we will provide a brief description of the various types of

transition programs and develop a three-part categorization that will be useful in our subsequent discussion of program effects.

## PROGRAM DESCRIPTION AND GROWTH

### Types of Programs

Credit-based transition programs include a diverse group of initiatives:

The ***Advanced Placement*** (AP) program was started in 1955 and is administered by the College Board. Students can potentially earn college credit by taking an AP exam because many colleges will give credit if a student gets a high enough score. In 2000, 760,000 students took over one million AP exams (The College Board, 2001b).

The ***International Baccalaureate*** (IB) program was started in 1968 as a liberal arts course of study for students in international schools around the world. IB students take exams in specific fields and earn credit, at the discretion of the college, based on a cutoff score. In the U.S., nearly 22,000 students in 292 high schools took IB exams in 2001 (IBO, 2001).

***Tech Prep*** is a highly diverse program established by the 1990 reauthorization of the Carl D. Perkins Vocational and Technical Education Act. The foundation of Tech Prep is articulation and coordination between high school and college courses in particular areas (usually technical or occupational). College credit for work in high school is not necessarily a part of this strategy, although in some cases students earn credit "in-escrow," in the sense that they are given college credit for a course taken in high school if they complete one or more specified courses in college.

***Middle College High Schools*** (MCHS) were established to help students who were at risk of dropping out of high school meet graduation requirements and transition into postsecondary education. They are usually located on college campuses and provide both high school and college curricula (AEL, 2002; Wechsler, 2001). Students take high school courses and, when they are ready, begin to take college courses for dual credit as part of their MCHS coursework. Middle college high schools are generally local initiatives, though some national organizations, such as the Middle College High School Consortium, serve as resources for member schools.

In addition to these specific models, many credit-based transition programs are based on specific agreements between high schools and colleges (both community colleges and baccalaureate-granting

colleges) through which high school students can enroll in college courses either on the college campus or at the high school. This is usually referred to as ***dual enrollment*** or ***dual credit***. Courses given at the high school are under the auspices of the college. In these cases, the college that is involved will recognize the credit, although other colleges in the state, and especially those out of the state, may not.[7]

## Level of Student Participation

There is no systematic count of the overall number of students enrolled in credit-based transition programs, partly because they vary so widely. National programs, such as AP and IB, do have counts, as noted above, but even in these cases, we do not know how many students took AP courses, since they can take AP exams without taking AP courses, and AP courses without sitting for the exam.

Estimates of student participation in any type of credit-based transition program are even vaguer. Clark (2001) surveyed state officials, asking for a count of students enrolled in dual credit programs. Only 26 states were able to offer even a rough estimate. Still, extrapolating from the survey results and from data from national programs, Clark estimates that nearly half of all juniors and seniors in U.S. high schools participate in at least one form of credit-based transition program. This is likely an overestimate, however, as he did not attempt to account for students who participate in more than one form of program (for example, taking both AP and dual credit courses) and he included all Tech Prep students, many of whom do not earn college credit in high school. Further, most of these students were in AP or Tech Prep, rather than dual credit, programs.

While we do not have a good sense of the number of students currently involved in all of these programs, there is strong evidence that that number has grown. Both the AP and the IB have doubled in size in the past decade (The College Board, 2001b; IBO, 2001). Though both programs tend to enroll already motivated, successful students, they are also both seeking ways to expand enrollment to populations not usually considered "elite." Efforts include the institution of pre-AP and pre-IB diploma preparation programs (IBO, 2002; J. Mooney, personal communication, June 2002).

Middle college high schools, traditionally a much smaller initiative, have garnered significant attention recently. In 2001, the Bill and Melinda Gates Foundation pledged $40 million to start 70 new middle college high schools (called Early College High Schools by the foundation[8]) (Arenson, 2002). Most are expected to have opened by the Fall of 2003; it is estimated that once all 70 are operational, nearly 28,000 students will be attending.

By far the biggest growth in credit-based transition programs has been in the area of dual

enrollment and dual credit. While students have long been able to enroll in a course at a college during their senior year under special circumstances, the creation of programs, with state support and administrative assistance from schools and colleges, is relatively new, and appears to be expanding rapidly. In Virginia, for example, there were 6,700 high school students in dual enrollment programs in 1997, as compared with only 2,000 in 1991 (Andrews, 2001). In New York City, where a concentrated effort to increase dual enrollment is underway, the number of colleges offering dual enrollment grew from six to seventeen between 2000 and 2001 (Kleiman, 2001). Nearly 15,000 New York City high school students are enrolled in a credit-based college course this school year (J. Garvey, personal communication, February 2003).

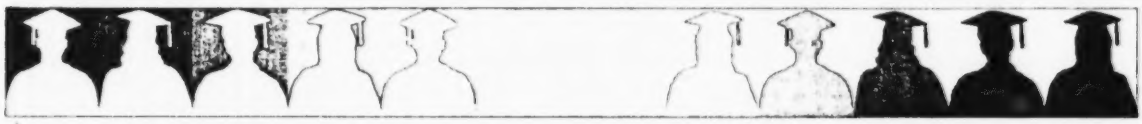
At the state level, support is widespread. A 2001 report by the Education Commission of the States (ECS) reported that all but three states have some sort of dual enrollment program, though the legislative requirements and institutional arrangements promoting the programs vary widely (ECS, 2001). Only 26 of these states ensure that students do not pay more than a minimal fee for participation, for example. While some states mandate specific program features, such as admissions requirements or the ability of high schools to offer dual enrollment courses, many other states do little but grant students permission to take college-level courses.

The number of students participating in these programs is likely to continue to rise. According to the Department of Education's proposals for the Secondary and Technical Education Excellence Act of 2003 (U.S. Department of Education, 2003), the new law would seek to increase students' preparation for college and reduce the need for postsecondary remediation by fostering relationships between community colleges and secondary schools. Funding would shift from traditional vocational programs to programs, such as dual enrollment, that promote academic achievement and smooth transitions from high school to college for all students. The additional funding for credit-based programs resulting from this legislation is likely to further increase student participation.

Before we examine the evidence of program impact, we will first discuss the wide degree of variation among the various types of programs subsumed within the broader category of "credit-based transition programs." It is possible that certain program types are more effective than others, or that different program types lead to positive outcomes for different policy goals. We turn now to these differences, and offer a framework that conceptualizes program variation in a systematic way.

## PROGRAM VARIATION AND CATEGORIZATION

Credit-based transition programs vary widely in terms of course content, location (at the college or at the high school), instructors (certified high school teachers or full-time or adjunct college



professors), granting of college credit, method of earning college credit, (through a third-party test or by simply passing the course), and the characteristics of students (particularly whether they are high achieving, college-bound, or lower achieving students).[9]

Analysts have used some of these distinctions to develop typologies of credit-based transition programs, although no scheme includes all of the transition programs discussed in this paper (Bragg, 2001; Clark, 2001; Johnstone & Del Genio, 2001). Since we are particularly interested in the effectiveness of transition programs for middle and lower achieving students, we have developed a typology that differentiates among programs in terms of their intensity and their ability to expose students to a wide range of "college-like" experiences. The typology is based on the assumption that, especially for students not traditionally college-bound, the transition from high school to college involves more than just an increase in academic rigor, although that is indeed a crucial element. A successful transition requires an understanding of what is necessary in college as well as the ability to acquire new behaviors and attitudes. Motivational and psychological factors are particularly important. The intensity of credit-based transition programs varies in terms of how much of a student's educational experience the program covers, how many aspects of the postsecondary transition are included in the program, the degree to which students are integrated into a college environment, and the amount of formal assistance they receive with their transition to college.

We conceive of three broad categories of intensity:

- ***Singleton programs***, which refer to stand-alone college-level courses;
- ***Comprehensive programs***, which subsume most of a student's academic experience; and
- ***Enhanced comprehensive programs***, which offer students college coursework coupled with guidance and support to ensure their success in postsecondary education.

We discuss each of these in turn, focusing on the ways that these program types might serve lower achieving students.

## Singleton Programs

Usually offered as an elective with the primary goal of exposing students to college-level academics, singleton transition programs are often only a small part of a student's high school experiences. The goal of singleton programs is not to recreate the college experience or to accustom high school students to the expectations of postsecondary education; rather, the programs aim to

enrich the high school curriculum by offering an opportunity to take a college-level class. A secondary goal is to provide students with the opportunity to earn college credit so that they may start their postsecondary education with a "head start" towards graduation. Other aspects of the high school-college transition, such as preparing applications or obtaining financial aid, do not accompany singleton programs.

The Advanced Placement (AP) program is one of the most common singleton programs. It allows students, as part of their regular high school curriculum, to take one or more college-level courses during their junior or senior year, but does not require them to replace the entire high school curriculum with such courses (The College Board, 2002). Likewise, many dual credit programs follow this model. Frequently, these courses are taken before or after the regular school day, so that dual credit participation becomes an addition to the normal high school experience, rather than a replacement for it (Robertson et al., 2001; J. Garvey, personal communication, February 2003). Finally, some Tech Prep programs use this model, though it is not the preferred way to implement Tech Prep (Bragg, 2001).

Singleton programs are generally offered through the high school and are frequently taught by high school teachers, though some dual credit programs allow students to take a course on a college campus or use college faculty to teach high school-based courses. Curricular content also varies: the AP program and some dual credit programs use a specially-designed curriculum for high school students, while other dual credit programs use the same syllabus, books, and exams as regular college courses. Indeed, in some cases, high school students simply take regular college courses on the college campus.

Although program and policy language conceives of singleton programs as meeting the needs of a wide variety of students—for example, the expansion of AP to a broader student population or the use of dual credit to motivate middle range students to challenge themselves in interesting courses—the majority of the literature reveals that students in these programs are highly motivated and academically proficient. Only three of the 22 singleton programs encountered during the preparation of this paper did not require students to be college-bound or academically proficient.

Singleton credit-based transition programs, then, seem to provide already high-performing students with the opportunity to challenge themselves and further prepare for college-level work. Though they may offer students the opportunity to learn behaviors and attitudes necessary for college success, they do not provide a comprehensive college preparation experience. Most focus only peripherally on teaching the skills, such as study skills, that make college students successful.

## Comprehensive Programs

Comprehensive credit-based transition programs encompass much more of a student's educational experience than singleton programs do. Most programs in this category require that students take many, if not all, of their courses during the last year or two of high school under its auspices, either as an articulated series of courses spanning many semesters or as their entire curriculum. Thus, students may begin to experience what it is like to "be" a college student, having to learn to balance many challenging courses with other activities, to organize their time wisely to complete all of their work, and to act in ways that are commensurate with the behavioral expectations of a fully matriculated college student. They may even learn to interact with older students and to navigate their way around a college campus. However, such learning is not the primary goal of the programs. Rather, comprehensive programs, like singletons, see academic rigor and enrichment, rather than social-psychological preparation for college, as the primary goal. Therefore, unlike in the enhanced comprehensive programs discussed in the next section, study habits and college culture are not explicitly taught in regular comprehensive programs. In essence, students are "thrown in" to a college-intensive experience without specially created supports or structures.

The International Baccalaureate (IB) program is an example of a comprehensive transition program. Students take all of their courses within the program; as a result, their entire junior and senior years are characterized by the rigorous academic expectations of the IB program. Moreover, the level of skill that the IB program requires has prompted a number of schools to institute pre-IB programs at the freshman and sophomore levels; conceivably, students could spend their entire high school experience preparing for college-level work through the IB program (IBO, 2002). But so far, IB programs have attracted high achieving students who often get information and support from their families. As a result, IB programs have not emphasized the types of support services that might be necessary for less well-prepared students or those from families and social backgrounds that have not provided students with insights to the entire college experience.

A second comprehensive program is an intensive version of dual credit, as exemplified by the Running Start program in Washington State (Washington State Board for Community and Technical Colleges, 2001).[10] Such dual credit programs allow students essentially to leave their high school and enroll in college full time, while counting their college coursework toward the credits needed for high school graduation. In other words, college replaces the high school experience. Students spend their school days at the college, experiencing the expectations and lifestyle of a college student. However, these experiences are an ancillary benefit, rather than an explicit goal. The focus of Running Start is still rigorous academics and the ability to earn up to a year's worth of college credit, rather than directly teaching students about the high school-to-college transition.

Finally, some Tech Prep programs can be counted as comprehensive transition programs (Bragg, 2001).[11] In a comprehensive Tech Prep program, Tech Prep faculty work with a single cohort of students and focus on instruction that infuses academic preparation with career-specific training. Students in this form of Tech Prep have a more intense experience than those in a Tech Prep program that uses a singleton approach. Tech Prep programs may also allow for a series of articulated courses, where students enroll for multiple semesters into successively advanced courses.

The key element of this model is its ability to include students' full high school experience within a credit-based transition program. As is evident from the program descriptions above, significant variation still exists. Comprehensive programs can be located on either the high school or the college campus, and be taught by either high school or college teachers. Likewise, they may use specially created curricula, such as the IB curriculum, or rely on college curriculum, as when dual credit courses are taught on the college campus. Students may take their courses with college students, or may be in a classroom with only their high school peers. Moreover, they may earn their college credit through examination, through completion of coursework, or in-escrow.[12]

As with singleton credit-based programs, the majority of students in comprehensive programs are academically advanced and ready for college-level work. In our review of the literature, we found 12 comprehensive programs. Six were academically oriented—dual credit or IB—and specifically targeted for academically proficient students. For example, a study conducted by the Washington State Board for Community and Technical Colleges (2001) found that students enrolled in Running Start had an average high school grade point average of 3.65 and an average combined SAT score of 1180 prior to program entry.

The six comprehensive programs in our sample that included middle achieving students were all Tech Prep programs. These programs were founded with the mission to serve students from the middle ranges of academic achievement (Bragg, 2001). However, they often do not lead directly to college credit; rather, they provide students with articulated courses or credit in-escrow.

Comprehensive credit-based transition programs clearly offer students more intensive college preparation than singleton programs do. As a result of their intensity, they may offer students more of an opportunity to learn the behaviors and attitudes required for success in college than singletons. Their primary focus, however, remains on academic preparation, exposure to rigorous course work, and the ability to earn college credit. Given the more extensive range of experiences, it is more likely that these programs will have the psychological and motivational effects that are in theory the basis of their effectiveness for less prepared students, but the programs do not build in features to purposefully promote and strengthen those effects.

## Enhanced Comprehensive Programs

Enhanced comprehensive programs are the most intensive form of credit-based transition programs. These programs seek to prepare students for college, not only through rigorous academic instruction, but also by offering a wide range of activities such as counseling, assistance with applications, mentoring, and general personal support. They aim to address all elements of the secondary-postsecondary transition, and encompass the majority of students' high school experiences. Because of their intensity and reliance on close student-teacher relationships, these programs are much less common than those fitting the other two categories. However, they appear to be best suited to the needs of nontraditional college students and to have the most potential to move non-academically advanced students into postsecondary education.

By far the most common type of an enhanced comprehensive program is the middle college high school (MCHS). Many of these high schools are located on community college campuses. As noted above, these schools were established to help students at risk of dropping out of high school meet graduation requirements and transition into postsecondary education. By attending school on a college campus, students at MCHS are continually exposed to the demands and expectations of college, learn how to apply to the college, and become comfortable in the college environment. The support offered by MCHS staff often continues after high school graduation; students who matriculate into the partnered postsecondary institution can maintain their ties to their high school while adjusting to full-time college attendance.

Some dual credit programs have also begun to implement intensive college preparation components. College Now in New York City, for example, often includes enrichment courses and remedial experiences to students not qualified for college credit-bearing courses (J. Garvey, personal communication, February 2003; Kleiman, 2001). Though these experiences are somewhat less intense than a true "comprehensive" experience, in that many occur as supplements to the regular high school curriculum, the College Now program begins working with students in a structured way as early as their freshman year; by the time students are in the twelfth grade, college preparation and transition activities have infused their high school experience in a way that goes beyond simply augmenting the regular high school curriculum.

Not all College Now programs include these components, but those that do work to ensure that students are ready for the academic and social challenges of college.[13] For example, freshmen and sophomores may take courses in the history of music that teach them independent research skills, and sophomores and juniors can participate in SAT preparation courses. Throughout, students learn about the behavioral expectations of being in college while honing their academic skills.

Although enhanced comprehensive programs are more likely to be designed for at-risk or non-college-bound students, many do have restrictive entrance requirements. For example, recent expansion of the middle college high school model in New York is predicated on the success of Simon's Rock College of Bard, a college which is explicitly designed for academically advanced high school students, although it promotes the earning of college credit prior to traditional "college age," (Simon's Rock College, 2002).[14] Thus, New York City has opened four new Early College High Schools that allow students to take advanced coursework on a college campus and earn credit toward an associate degree (and in some cases, the associate degree itself). All four of these schools have rigorous entrance requirements. Three use the same entrance exam the city's most elite high schools use, while the fourth screens students according to their middle school grades, assessment test scores, and an interview (Bard High School Early College, 2002; New York City Board of Education, 2002).

While other middle college high schools, including La Guardia Middle College High School in New York City, explicitly focus on less academically advanced students, they also seek students who will "fit" with the program model (Wechsler, 2001). In other words, it is not clear that even those programs designed to meet the needs of the average or educationally disadvantaged student truly do so. Furthermore, there is a tendency for middle college high schools to escalate their entrance requirements as they feel pressure to improve student outcomes.[15]

As noted, enhanced comprehensive programs are more likely to be focused on middle or low achieving students and on youth who are socially or economically disadvantaged, although many still have restrictive entrance requirements. They are more likely to be located on a college campus than other transition programs, though many are located at the high school. They use a mix of high school and college faculty, as well as a mix of specially created and regular college curricula. Students usually remain in classes with their high school peers; the exception tends to be students in MCHS courses who take dual credit classes at the college. Finally, students earn college credit through course completion, although some programs do not offer college credit for their non-academic activities, such as SAT preparation.

Given evidence (see Ingles, Curtin, Alt, & Chen, 2002; Tinto, 1993) that the transition from high school to college involves more than just academics, enhanced comprehensive programs appear to be the most likely category of program to address the wide range of student needs. They are distinguished from comprehensive programs by their explicit attempts to promote the motivational and psychological effects that are believed to be crucial for the effectiveness of these programs for less-well prepared students.

## FIGURE 1: Matrix of Program Types

| | Singleton | Comprehensive | Enhanced Comprehensive |
|---|---|---|---|
| Target Student | Academically proficient | Academically proficient<br>Middle achieving | Middle to low achieving |
| Location | High School | High School<br>College | High School<br>College |
| Student Mix | High School only | High School only<br>Mixed with College | High School only |
| Instructor | High School<br>College | High School<br>College | High School<br>College |
| Course Content | Special curriculum<br>College curriculum | Special curriculum<br>College curriculum | Special curriculum |
| Credits Earned | Exam-based<br>Course-based<br>In-escrow | Exam-based<br>Course-based<br>In-escrow | Course-based |
| Degree of Intensity | Low—just one of many educational experiences had by students in their junior or senior year | High—the primary educational experience during the last years of high school | High—addresses social and behavioral, as well as academic, needs |

Note: The matrix offers the most typical characteristics of each program type. Other variants of each program type do occur, but the most common are shown here.



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## EVIDENCE OF PROGRAM IMPACT

Do credit-based transition programs increase college enrollment and success, especially for students other than the traditionally college bound? In this section we draw on published and unpublished research to answer this question.

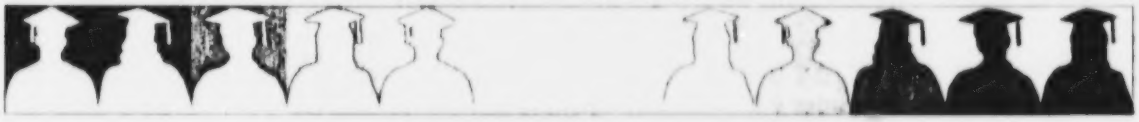
It is clear from the available literature that research on the effects of transition programs is at a very early stage. While we reviewed 45 articles and reports, only 21 discussed program outcomes. The remaining 24 studies were qualitative or descriptive, or they focused on student and parental opinions and attitudes about the programs. They did not attempt to measure the effects of program participation. These articles varied in terms of the rigor and definitiveness of their methodologies.

Of the 21 studies that did attempt to report on outcomes, few attempted to take account of other factors that might influence program outcomes, such as student characteristics, prior student achievement, or motivation. Given that many programs have entry requirements, it is difficult to discern whether measured outcomes result from the selectivity of the programs or the experience that the students have in the programs.

Our report on the available research is divided roughly according to our three program categories: singleton, comprehensive, and enhanced comprehensive. We recognize that this is somewhat arbitrary since some studies include programs that could be categorized in more than one group; nevertheless, our goal is to search for a general sense of any differences among these approaches.

### Singleton Programs

Studies have used a variety of outcome measures including college enrollment, freshman year and subsequent success, or college graduation. Most studies do come to relatively positive conclusions. In one study, dual enrollment students from one program in Arizona graduated from high school at higher rates than students who did not participate in dual enrollment (Finch, 1997). Analysis of institutional data from Monroe Community College in New York (2003) found that dual credit students who enrolled in the college full time after high school were less likely than other first time, full-time freshman to score below 80 percent on a college placement test of reading, had higher first semester grade point averages, and were more likely to persist to the second semester of their freshman year. Other studies have shown that dual enrollment students do as well or better in upper division and advanced coursework as students who took the prerequisite courses after they started college (Chatman & Smith, 1998; Morgan & Ramist, 1998; Windham, 1997; Washington State Board for Community and Technical Colleges, 2001). However, none of these studies controlled for students'



prior academic performance or other attributes, nor did they focus on possible effects on students not typically seen as college bound.

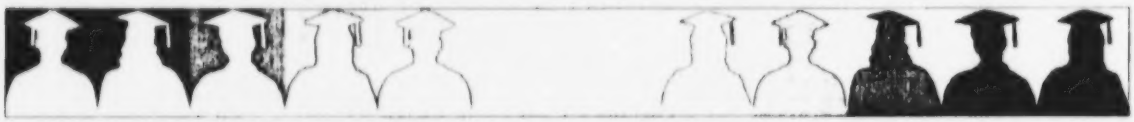
One study of dual enrollment programs, undertaken by researchers at the University of Arizona (1999), did control for prior academic achievement. The authors compared students who had participated in either AP or dual enrollment (or both) to those who did not participate in any credit-based transition program to explore program impact on early college success. Though participants in the transition programs had stronger high school achievement than non-participants, the study was able to control for high school grade point average and SAT scores in its analysis. The authors found that students who had participated in transition programs experienced lower drops in their grade point averages during their freshman year than the other students, and suggested that this difference indicated a positive impact on college success stemming from participation in AP or dual enrollment. Although they did control for GPA and SAT scores, it is still possible that unmeasured differences between the two groups could account for the contrasting outcomes. And once again, this study did not consider lower achieving students, particularly in its focus on AP.

Some studies have tried to explore the implications of different characteristics within singleton programs. Burns and Lewis (2000) conducted a tiny exploratory study of six students evenly split between high school- and college-based dual enrollment courses; the two small samples were matched so that the students were of similar academic backgrounds. Through open-ended interviews, the researchers asked students about their experiences and perceptions of their dual enrollment course.

All students felt positively about their experience and desired further opportunities to take college courses, but those in high school-based programs were less satisfied than those in college-based programs. The students who took their college courses on a high school campus felt that the courses did not differ much from their other high school courses. In contrast, students who took their courses on a college campus felt that they learned more than just academics: they stated that they felt more independent, responsible, and grown-up.

Some colleges are also more skeptical about dual enrollment courses given at high school. Johnstone and Del Genio (2001) conducted a survey of 451 postsecondary institutions, asking about their acceptance of a student's college credit earned while still in high school. Nearly one-third of all institutions indicated that they were "suspicious" of credit earned through transition programs offered in the high school; as a result, many refused to grant credit for those courses.

Hebert (2001) explored the differences between singleton dual enrollment models that used different types of teachers. She studied the college transcripts of five dual enrollment cohorts in a math course. Only those students who earned a C in their course and subsequently enrolled in a state



college were included. The entire sample took their dual enrollment course on the high school campus, but half had high school teachers and half had college professors as instructors.

The study found that the mean grade in college mathematics was higher for those students who had high school teachers for their dual enrollment course. Likewise, the grade distribution in college math differed for the two groups, with many more students who had a college professor for their dual enrollment course earning low grades and students who had a high school teacher earning more As and Bs. On the face of it, this conclusion seems in tension with the results of the Burns and Lewis (2000) study. Perhaps, however, students simply find it more exciting to be on a college campus, although the high school teachers who teach college courses in high school, and who naturally have more experience working with high school students, produce more positive outcomes. Nevertheless, these studies are too preliminary to draw strong conclusions.

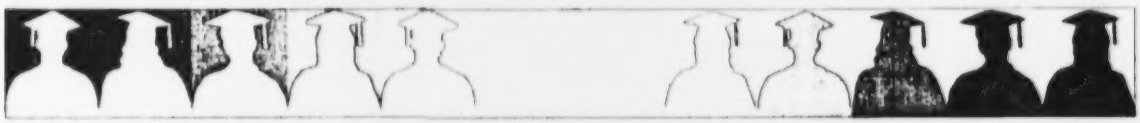
Overall, the results for singleton programs are relatively positive, but can only be considered tentative. With the exception of the Arizona study, none take prior academic achievement into account. Moreover, most students in singleton programs are traditionally college-bound or higher achieving students.

### Comprehensive Programs

The body of research on Tech Prep is the largest source of quantitative studies of credit-based transition programs. Moreover, Tech Prep programs are, for the most part, not aimed at typical college-bound high school students. Tech Prep programs are diverse and some could be placed into each of the three categories outlined in the typology. As we have pointed out, earning credit in high school is not necessarily a fundamental component of Tech Prep. Nevertheless, most Tech Prep advocates would argue that Tech Prep would work best if it included a comprehensive set of courses, so we will consider it a comprehensive program for our purposes.

As part of the national evaluation of Tech Prep,[16] Bragg (2001) conducted a transcript analysis of Tech Prep students and matched comparison groups in eight Tech Prep consortia. Though the sampling procedure intended to ensure that Tech Prep students and comparison students were similar, the two samples differed slightly.[17] There is no indication, however, that the two groups differed on measures of academic performance, such as grade point average or class rank.

The study found that, in each of the eight consortia studied, at least 65 percent of Tech Prep students enrolled in postsecondary education within three years of high school graduation (but did not state what percentage of the comparison group did so). Tech Prep students were more likely than the



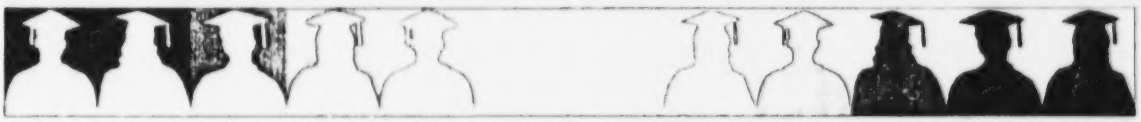
comparison group to attend a two-year college (although the difference was not statistically significant). They were also more likely than comparison students to choose to work full time instead of attending postsecondary education.

Another study of Tech Prep was conducted by the New York State Department of Education (Brodsky & Arroyo, 1999; Brodsky, Newman, Arroyo, & Fabozzi, 1997). It also used a matched sample of Tech Prep and comparison students, although the Tech Prep students did have higher levels of tenth grade academic achievement than the comparison group. Nonetheless, statistical analyses controlling for these preexisting differences found that Tech Prep students had higher grade point averages in eleventh and twelfth grades than did comparison students, had better attendance and Regents Math II (New York State academic assessment) scores, and were more likely to graduate from high school in four years than the comparison group (Brodsky et al., 1997). However, Tech Prep students had lower SAT scores. A follow-up to this study (Brodsky & Arroyo, 1999) also found positive results, but many students left the study, meaning that the two samples were no longer similar. In conducting the follow-up analyses, the authors made comparisons without controlling for individual differences.

Thus, the research on comprehensive programs, primarily on Tech Prep, reaches tentatively optimistic results. Some authors of Tech Prep studies did create matched samples and attempted to control for some background characteristics and still found positive effects for students in the program.

### Enhanced Comprehensive Programs

The middle college high school comes closest to our definition of an enhanced comprehensive program and there is also a body of research on the middle college high school model, which, as we have pointed out, is often focused on at-risk students. Wechsler (2001) reports that internal evaluations of the original middle college high school, LaGuardia Middle College, found that MCHS students generally performed better than the average for students in other alternative schools (which also drew from at-risk student populations) and for city students as a whole on measures of academic achievement, and the students had higher graduation rates and lower dropout rates. However, these studies are dated—most looked at students who graduated in the late 1970s and 1980s, and none were published after 1991. They also found that MCHS graduates were unlikely to earn a bachelor's degree within four years of graduation and more likely to earn a two-year degree than a four-year degree, and that graduates felt that their academic preparation was relatively weak (Wechsler, 2001). Unfortunately, the research was unable to compare these outcomes to those for other, similar students who did not attend a middle college high school.



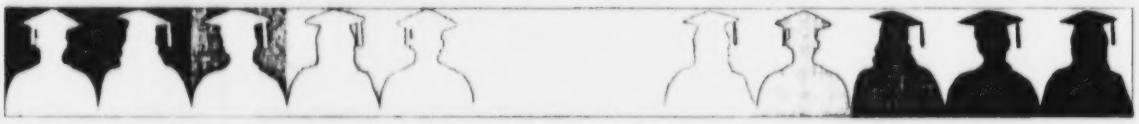
Another study (AEL, 2002) found that students in two California middle college high schools had high test scores on state assessment tests. More MCHS students were successful on both math and reading tests (scoring at advanced, proficient, or basic levels) than district and county averages. However, some of this aggregate advantage appears to come from high numbers of students scoring at the "basic" level rather than at the "advanced" level. In addition, while the two middle college high schools included in this study did focus on students with low levels of academic performance, the students were specially screened to ensure that they had a high level of potential, as indicated by test scores at or above grade level and good attendance records (AEL, 2002).

Greenberg (1988) compared student achievement in three credit-based transition programs, including a middle college high school, to a national sample of 20,000 college students maintained by the Cooperative Institutional Research Program at the University of California, Los Angeles, which collects demographic and academic information on incoming college students. The programs—Middle College High School (MCHS), City-as-School, and College Now—all served at-risk students, while the national sample was drawn from a representative sample of first-time college students. In their college-level coursework (completed while in high school), the students were successful, with grades ranging from C to B-. However, only College Now students performed comparably to the national sample; students in MCHS and City-as-School had lower grades in their college courses (taken during high school) than students nationally. The study did not follow the students into postsecondary education, so offers no indication of their college performance.

We also categorized the College Now program in New York as an enhanced comprehensive program (although it is not always implemented as such), and researchers found that College Now students were less likely than other City University of New York (CUNY) freshmen to need remediation when they entered CUNY (Kleiman, 2001). College Now students who enrolled in the CUNY system were twice as likely as other CUNY students to graduate from college on time (Kleiman, 2001).

A study of a comprehensive dual enrollment program for vocationally-oriented, at-risk students found mixed results (AEL., 2002). Tracking academic outcomes from three cohorts of students, researchers found that dual enrollment students were generally successful in their courses, both at the high school and college level. Depending on the cohort, between 57 and 68 percent of entering dual enrollment students graduated from high school; comparable numbers for students not in the program were not given. However, the program became more selective over time, so it is not clear that these positive results are actually from a group of students who might be considered disadvantaged.

Finally, in Bragg's (2001) Tech Prep study, she did find that one Tech Prep consortium followed a model that we would probably categorize as an enhanced comprehensive strategy. This consortium used an integrated program model that focused on college readiness and preparation for baccalaureate



education. While she found that students in most Tech Prep consortia were more likely than students in the comparison group to enroll in two- rather than in four-year colleges, students in this consortium were more likely than the comparison group to attend a four-year college. Thus, Bragg speculates that program model and focus has an influence on student transition to college (2001).

Overall, the research relevant to the enhanced comprehensive model, primarily research on the middle college high school, is inconclusive. The results are mixed, and none of the studies used comparison groups that would allow conclusions about the effectiveness of the MCHS model. While these studies were somewhat less positive than the studies of other models, it should be emphasized that these programs were also more likely to enroll at-risk or lower achieving students.

## CONCLUSIONS AND DIRECTIONS FOR FURTHER RESEARCH

Interest in credit-based transition programs has grown dramatically in the last several years. Although none of the various strategies that make up these transition programs are new, the last decade has seen a departure from the past along two dimensions. First is simply the magnitude of the phenomenon. Advanced Placement, International Baccalaureate, and dual enrollment/dual credit programs have all grown dramatically. Tech Prep was already large, but it has shifted towards a greater emphasis on dual credit. Nationally, reformers also have plans to develop new middle college high schools or other forms of high schools with dual credit components. Second, the enthusiasm among many of the advocates arises from the growing conviction that this strategy can work for disaffected and middle and lower performing students.

The appeal of credit-based transition programs is obvious. At a time when educators and policy makers are discouraged with high schools and convinced that some postsecondary education is a necessity for everyone, these programs evoke a powerful image in which disengaged high school students are pulled into college by setting high expectations and providing them with concrete information about what college is like, where they stand in terms of college preparation, and what they need to do to be successful in college. Although the dual enrollment movement was well established during the boom of the past decade, the more recent state and local fiscal crises have given added impetus to a strategy that appears to be able to telescope high school and college and thereby save money for students, state governments, local governments, or some combination of all three.

This report has sought to summarize what we know about these transition programs based on existing published and unpublished material both to help educators and policy makers now and to help establish an overall research agenda for the future.

If we were to state one conclusion from this review, it would be that so far we know little that is definitive about the overall characteristics and effects of these programs. A handful of studies have tried to measure effects, but most of these do not even take the elementary statistical step of controlling for prior academic achievement or other possible personal characteristics that might influence student outcomes. Experience and logic for the most part have fueled the continued development of the programs. Arguments in favor of the strategy may be compelling enough to continue experimentation, but while that is happening, policy makers and educators need to pursue research in a variety of areas:

***Gather information on the size and characteristics of the programs.*** Although it appears that the programs are spreading, we lack any clear sense of how many students are involved. Many states are unable to give even rough estimates. Further, we have identified several important characteristics of dual enrollment programs—for example, whether the course is given at the high school or the college and whether it is taught by a high school teacher or college professor—but there is no comprehensive information about the distribution of these characteristics among existing programs.

***Examine the content of courses taught in transition programs.*** Credit-based transition programs, in principle, teach college-level material. In actuality, do they? It is likely that this will be the case when high school students participate in college-level courses on a college campus, but our sense is that this scenario accounts for a minority of students in transition programs. Some authors are skeptical that courses taught at the high school are indeed taught at a college level. And to the extent that lower achieving students are recruited, then there may be a tendency to compromise the course content.

***Develop more precise information on the distribution of the characteristics of students in transition programs.*** Much of the recent growth in interest in credit-based transition programs results from a conviction that such programs can improve educational outcomes for a broad range of students. Nevertheless, we do not have definitive information on the distribution of characteristics of participating students. Our overall sense is that these programs are still most likely to attract traditionally college-bound students, and even those which seek a broader range of student participants have entrance requirements that may screen out many of the students who need help. We did see an example of an escalation of entrance requirements, and while it is only one case, it is easy to understand the incentives that lead to this type of change.

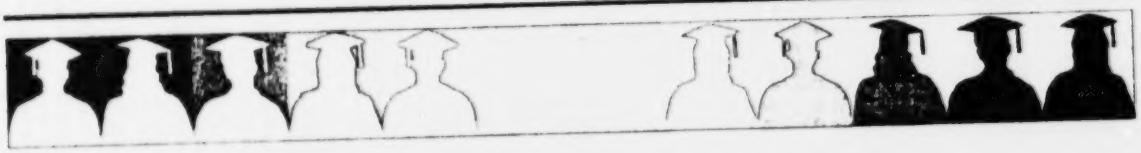
***Develop a clearer explanation of the mechanisms through which credit-based transition programs can effectively help middle and lower achieving students gain greater access to and have more success in college.*** In the past, transition programs have had a clear and easily understood role for college-bound students who completed many of their high school requirements and were academically ready for college. But educators and policy makers now have more ambitious plans for

these programs. There are in fact many possible reasons why such programs could serve a broader range of students. Advocates have not been explicit about which mechanisms are most important, although generally it appears that advocates believe that motivational and psychological effects are key. It is important that this be clarified. Otherwise, it will be more difficult to resist the tendencies either to make the programs more selective or to compromise the curriculum.

***Conduct clear, methodologically sound evaluations of credit-based transition programs.*** Overall, the studies that we have reviewed come to positive conclusions: students in transition programs do as well or better than other students. But conclusions from this research must be considered tentative. Only a handful of studies make any attempt to construct an appropriate comparison group. Only two studies used statistical techniques that control for academic ability and other personal characteristics. And while these two tended to find positive effects, unmeasured factors related to the enrollment selection processes may account for some or all of the positive results. Therefore, it is difficult to differentiate the effects of the program from differences in characteristics of the entering students. Future research should control for student characteristics, take into account program implementation features, and explore long-term impacts.

***Conduct research on the impact of different program models on student outcomes.*** Two small-scale studies do suggest that the location of the course and the type of teacher may influence student outcomes. On the basis of available research, we are not able to reach conclusions about differences in the effectiveness of the three different types of strategies that our conceptual framework defined. Indeed, a superficial reading of the research suggests that the enhanced comprehensive programs are the least successful. But this may be because they are the ones most likely to enroll less traditionally college-bound students.

The literature suggests that transition programs potentially hold promise, yet does not convincingly document that this promise has been realized. It offers evidence for continued support of such transition programs, but also draws attention to the need for much more comprehensive and reliable information on program and student characteristics, and also for sound research that both evaluates program outcomes and explores the mechanisms and program features that contribute to any positive influence they may have on students' transitions into and through postsecondary education.



## Notes

[1] Of those who entered postsecondary education for the first time in the 1995-1996 school year, 37 percent had left two years later without having earned a degree or certificate. In 2000, 66 percent of high school graduates aged 25 to 29 had completed some college but only 33 percent of graduates held a bachelor's degree (National Center for Education Statistics, NCES, 2001).

[2] There are many other forms of transition programs which are not included in this report. Some, such as the federally-funded GEAR UP and TRIO programs, provide low-income students or students whose parents did not attend college with intensive academic and social experiences. Others, particularly those programs run by colleges themselves, are focused on orienting students to "college life" by providing them with social and emotional support during their initial entry into postsecondary education. These varied initiatives are beyond the scope of this paper.

[3] We reviewed 45 published and unpublished reports, articles, and books on dual enrollment, AP, IB, Tech Prep, and middle college high schools. To do so, we conducted an ERIC literature search and sought out the references used in the publications written by others on credit-based transition programs. We contacted individuals at the state level and at postsecondary institutions in order to find out if institutional documents existed. In total, we contacted individuals in ten states, as well as at the Syracuse University Project Advance, the National Alliance of Concurrent Enrollment Programs, the College Board, and the International Baccalaureate Organization.

[4] See Bragg, Rasch, & Orr (forthcoming) for an extensive discussion of the results of this study pertaining to credit-based transition programs.

[5] We offer these numbers not as representative sample of all programs, but as a way to give a rough estimate of the extent to which credit-based transition programs require students to be academically successful.

[6] In this report we are discussing benefits to students. However, colleges, high schools, and state and local governments may have an institutional interest in these programs. At one college visited by the authors, the college received full reimbursement for dual enrolled high school students, but the costs were very low – classes were held at the high schools and taught by adjuncts or high school teachers receiving adjunct pay. In some cases both high schools and colleges received reimbursements for the same student. In general, accelerating education (one effect of transition programs) saves public funds, since most education, even at the postsecondary level, is publicly funded. In some cases, such programs, especially in technical areas, obviate the need for high schools to purchase expensive equipment. Thus, part of the increase in interest in these credit based transition programs may result from fiscal pressure on public education budgets. For a fuller discussion of institutional incentives for participation, see Bailey (2002) and Bragg et al. (forthcoming).

[7] Johnson County (KS) Community College (2002) conducted a survey of 726 former dual enrollment students. Of those who had enrolled in postsecondary education and requested transcripts in order to earn transfer credit, 82 percent reported that they were able to transfer all of the credits they earned during high school course-for-course; another 6 percent were able to transfer their credits, but as electives. Less than 10 percent reported that they were unable to transfer any of their credits. Most of the respondents were attending state institutions, and no attempt was made to explore differences in credit transfer among state versus private or out-of-state colleges.

[8] See the organization's web site: www.earlycolleges.org.

[9] For a more detailed discussion of these differences, see Bailey, Hughes, and Karp (2002).

[10] Some students in Running Start attend college for only part of the school day. However, Community College Research Center interviews with school staff indicate that many, if not most, Running Start students do attend college full time.

[11] It is important to note that not all Tech Prep courses lead to college credit; only the more advanced courses do so, and even then, some institutional arrangements make it difficult for students to apply this credit to a postsecondary degree.

[12] "Credit in-escrow" refers to a common arrangement in Tech Prep in which students do not immediately receive college credit for high school coursework. Instead, they must successfully enroll in and complete a sequence of courses at a community college in order to retroactively receive college credit for their high school work. According to participants in fieldwork conducted by the Community College Research Center, this arrangement has been controversial, since many students are unaware of it or find it cumbersome, and so do not apply to receive college credit for their high school courses, causing them to re-take classes or pay needlessly for additional college credit.

[13] Fieldwork conducted by the Community College Research Center during the winter of 2003 found that many aspects of College Now extend beyond academic preparation for college.

[14] Interestingly, as initially conceived, the middle college model was intended to meet the needs of at-risk students (see, for example, Wechsler's 2001 study of the origins of La Guardia Middle College). However, justifications for the expansion of the middle college/early college model focus on Bard College rather than on the success of more traditional middle college high schools (see Arenson, 2002).

[15] Researchers studying two middle college high schools in California (AEL, 2002) found that, over time, the program shifted its student mix, so that severely at-risk students and minorities were less represented in 2000 than they had been in 1989. High attrition rates in the early years of the program (when nearly half the entering students were at high risk of dropping out of high school) led program administrators to implement screening criteria and requirements, including the need for students to pass a test of basic skills (AEL, 2002). As a result, the grade point average of students prior to program entry rose dramatically. The median GPA of entering students in 1989 was 1.98, and students in this cohort were absent from high school an average of 15.5 days the year prior to program entry. In contrast, the median GPA for the 2000 cohort was 2.93, and students were absent an average of eight days in the year prior to program entry. Clearly, the focus on at-risk students shifted. This shift is attributed to program administrators' recognition that the most severely disadvantaged students were unlikely to be successful in a program that places them in college classes with college students.

[16] For both studies of Tech Prep reported on in this section, it is not clear that all Tech Prep students participated in courses that allowed them to earn college credit while still in high school. It is probable, however, that most students had the opportunity to earn at least credit-in-escrow.

[17] Tech Prep students were slightly more likely to be male, members of a minority group, and from a family with an income under $30,000 than comparison students.



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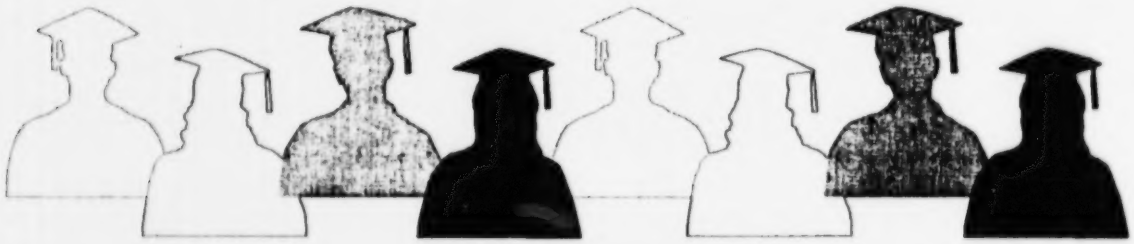

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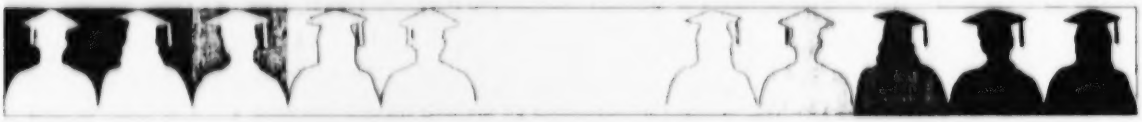

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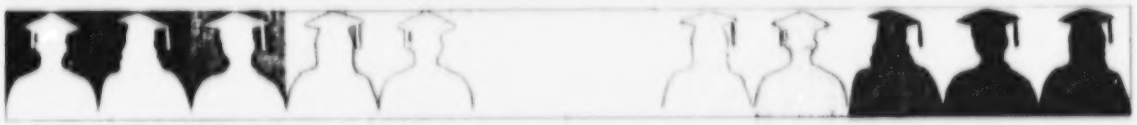

# Appendix: Highlights from Selected Research Reports

## Studies That Control For Student Characteristics

| Study | Key Questions | Outcomes | Major Findings |
|---|---|---|---|
| Bragg (2001) | • Does Tech Prep participation influence student education and labor market outcomes? | • College enrollment within three years of high school graduation<br>• Labor force participation | • 65 percent of Tech Prep participants enrolled in postsecondary education<br>• More Tech Prep students than comparison students enrolled in two-year, rather than four-year, institutions<br>• Most Tech Prep participants work after high school graduation, regardless of their college enrollment status<br>• Tech Prep students were more likely to work full-time than comparison students |
| Brodsky, Newman, Arroyo, & Fabozzi (1997) | • How do Tech Prep students compare to other students on high school academic measures?<br>• How do Tech Prep students compare to other students with regards to college enrollment and achievement? | • High school grades, attendance and test scores<br>• On-time high school graduation<br>• College grade point average | • Tech Prep students had higher 11th and 12th grade GPAs, better attendance, and better grades on Regents Math II exams than comparison students<br>• Tech Prep participants had lower SAT scores than comparison students<br>• Tech Prep students were more likely to graduate from high school in four years than comparison students<br>• Tech Prep positively influenced college grade point averages for those with local diplomas, though it was unclear that it did so for those earning Regents diplomas |
| Chatman & Smith (1998) | • Do dual enrollment students perform at the same level in advanced language courses as other students? | • End of course grades | • No significant difference in the grade distributions of dual enrollment and regularly enrolled students |
| University of Arizona (1999) | • What is the impact of concurrent enrollment and AP participation on first-year college grades? | • Freshman year grade point average | • Both AP and concurrent enrollment students had lower drops in grade point average during their freshman year than other freshmen |



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## Studies That Do Not Control For Student Characteristics

| Study | Key Questions | Outcomes | Major Findings |
|---|---|---|---|
| AEL (2002) | • How do middle college high school students perform academically, as compared to other students in the state?<br>• What are the academic outcomes for students in dual enrollment program? | • Test scores on state assessment tests<br>• Course grades<br>• High School graduation | • More MCHS students were successful on both math and reading tests than district and county averages<br>• High numbers of MCHS students scored at the "basic" level and MCHS students were less likely to score at an advanced level than the state average<br>• Dual enrollment students were successful in their courses, both at the high school and college level<br>• Depending on the cohort, between 57 and 68 percent of dual enrollment students graduated from high school |
| Andrews (2001) | • Did the changed funding in IL dual credit programs increase dual enrollment course offerings and student enrollments? | • Number of courses offered by colleges<br>• Student enrollment | • 77 percent of the colleges increased their course offerings since the funding shift<br>• 240 percent increase in high school involvement since the funding shift |
| Brodsky & Arroyo (1999) | • Is there a difference between Tech Prep and comparison students with regards to college attainment? | • College persistence<br>• Enrollment in career curricula<br>• GPA<br>• Need for remediation<br>• Enrollment in career curricula<br>• GPA<br>• Need for remediation | • Tech Prep students were more likely than comparison students to: persist in college, enroll in career curricula, have higher first semester grade point averages, complete four or more semesters<br>• There was no difference between the two groups in their rate of remediation or grade point averages after the first semester |
| Burns & Lewis (2000) | • Does the location of dual enrollment courses impact the climate of the classroom, and if so, how? | • Positive feelings about the experience generally<br>• Sense of independence<br>• Desire to continue with college courses | • All students felt positively about dual enrollment but those in HS based courses were less satisfied<br>• More dramatic influence on independence for those in college-based courses<br>• All wanted to continue taking college courses but felt there was more value to taking them on the college campus |

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## Studies That Do Not Control For Student Characteristics *(continued)*

| Study | Key Questions | Outcomes | Major Findings |
|---|---|---|---|
| Finch (1997) | • Is there internal research on the effectiveness of dual enrollment for improving the college going rate of students? | • College attendance<br>• Course grades | • Students in a concurrent enrollment program attend college at a higher rate than the average college attendance rate in their school district<br>• Dual enrollment students receive the same grade distribution as other students on their final exams |
| Greenberg (1988) | • Are low to moderate achievers successful in dual enrollment courses? | • Grade point average | • Mean student grade point average in college courses from the three programs ranged from C to B<br>• High school grade point average was highly correlated with college course grade point average |
| Hebert (2001) | • What is the impact of teacher affiliation on student learning? | • College grades | • The mean grade in a dual enrollment math course was higher for students who had high school teachers rather than college teachers |
| Hudson Valley Community College (1998) | • How do students perceive the dual enrollment program? | • Student perceptions of the program | • High rankings in terms of program satisfaction and desire to take more courses<br>• Most did not believe that dual enrollment helped them decide to attend college |

*Continued*



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## Studies That Do Not Control For Student Characteristics *(continued)*

| Study | Key Questions | Outcomes | Major Findings |
|---|---|---|---|
| Johnstone & Del Genio (2001) | • To what extent do colleges and universities participate in transition programs?<br>• What are the attitudes of colleges and universities toward college credit earned in the high school? | • College participation<br>• Acceptance of credits<br>• General attitude toward college credit earned in high school | • Institutional participation was related to selectivity<br>• Most colleges encourage the use of AP credits and allow them to substitute for some requirements and electives<br>• Selective institutions were most likely to believe that the main purpose of earning college credit during high school should be for supplementing and improving the high school experience<br>• About half of four year institutions do not allow credit earned in high school to be used toward college graduation<br>• Almost half of the respondents said they would not accept credit earned from high school-based programs offered by other colleges |
| Johnson County Community College (2002) | • How satisfied were students?<br>• How well did credits transfer?<br>• What is their current education?<br>• What are their perceptions of JCCC? | • Current enrollment<br>• Educational goals<br>• Perceptions of dual enrollment program | • Nearly all enrolled in postsecondary education<br>• Twenty percent enrolled at the sponsoring college<br>• Of those requesting transcripts, 82 percent were able to transfer credits course for course, 6 percent as electives; less than 10 percent did not have any credits transfer<br>• 97 percent intended to get a BA or higher<br>• Over 80 percent felt they were better prepared for college, and 97 percent would recommend the program to friends |
| Kleiman (2001) | • What happens to College Now students after they graduate? | • Remediation rates<br>• College graduate rates | • College Now students were less likely to need remediation when they entered the City University of New York (CUNY) than other CUNY freshmen<br>• College Now students who enrolled in the CUNY system were twice as likely to graduate from college on time |

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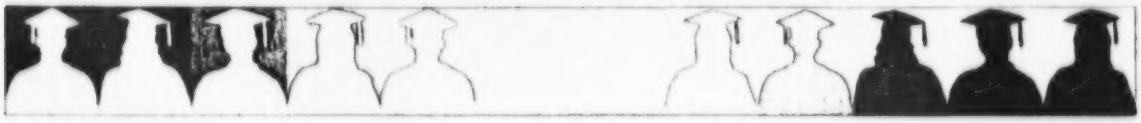

## Studies That Do Not Control For Student Characteristics *(continued)*

| Study | Key Questions | Outcomes | Major Findings |
|---|---|---|---|
| Melican, Debebe, & Morgan (1997) | • How do AP candidates perform on economics exams as compared to college economics students?<br>• How does the grading of the AP exam compare to the grading of college exams? | • AP exam grades | • High school students did better on the AP exam than college students with comparable grades<br>• College grades were valid predictors of AP exam grade |
| Minnesota Legislative Auditor (1996) | • What types of students participate in Postsecondary Enrollment Options Program (PSEO) and are they satisfied?<br>• What types of courses do students take and are they successful?<br>• Are there any access issues?<br>• How have schools been affected by the program? | • Participation rates<br>• Grades in PSEO courses<br>• Motivations and satisfaction<br>• Fiscal impact | • Six percent of state's juniors and seniors participate<br>• Ease of access to a college most significant indicator of a school's participation rate<br>• Most colleges have tougher admissions requirements to PSEO than the regular college program<br>• PSEO students received higher course grades than other students<br>• Most students enroll to earn college credit<br>• High schools found problems with the program—primarily due to budgeting and scheduling difficulties |
| Monroe Community College (2003) | • Do dual credit students enroll in MCC after high school?<br>• How do dual credit students fare in college? | • Full-time enrollment at MCC<br>• Placement test reading scores<br>• First semester grade point average<br>• Persistence to second semester | • Approximately 50% of each cohort enrolls in the college<br>• Dual credit students do slightly better on placement tests than other first time full time students.<br>• Dual credit students have slightly better first semester outcomes and are more likely to persist to second semester |
| Morgan & Ramist (1998) | • How do students who use their AP credits do in advanced courses? | • Second-level calculus grades<br>• Grade point average | • AP students who earned a score of 3 or higher had higher GPAs and percentages of As and Bs in their advanced coursework than other students |
| Windham (1997) | • Are dual enrollment students who meet community college admissions standards successful in college courses? | • College GPA | • Dual enrollment students had similar grade point averages than other transfer students into two colleges<br>• Dual enrollment students are more successful in advanced courses than regular students |



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Written for the Office of Vocational and Adult Education, U.S. Department of Education



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